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Docket Number 50-346
License Number NPF-3
Serial Number 3026

February 6, 2004

United States Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555-0001

Subject: Supplement to the Integrated Report to Support Restart of the Davis-Besse Nuclear Power Station

Ladies and Gentlemen:

On November 24, 2003, FirstEnergy Nuclear Operating Company (FENOC) submitted to the U.S. Nuclear Regulatory Commission (NRC) the "Integrated Report to Support Restart of the Davis-Besse Nuclear Power Station." Following submission of the report, readiness reviews and assessments continued as part of the Integrated Restart Test Plan (IRTP) process. A Safety Conscious Work Environment (SCWE) survey was conducted at Davis-Besse in early November 2003. In parallel with the IRTP process, additional actions were taken by Davis-Besse and were followed by a special SCWE survey follow-up NRC inspection. Also, during this same period several opportunities for improvement related to the conduct of operations were identified in December 2003 and January 2004.

This letter summarizes the additional actions that the Davis-Besse staff has taken demonstrating prompt management actions that support the restart of Davis-Besse. Attachment 1 describes the managerial actions taken with regard to a SCWE. Attachment 2 addresses actions taken in the conduct of operations area. Attachment 3 provides updated information with respect to those actions completed and major actions remaining to be completed prior to restart. Attachment 4 provides updated information on commitments for Cycle 14.

FENOC requests that the NRC review this supplemental information as part of its decision-making process to grant approval for the restart of Davis-Besse.

If you have any questions or require further information, please contact Mr. Gregory A. Dunn, Manager – Regulatory Affairs, at (419) 321-8450.

Sincerely,

Lew W. Myers

Attachments

IE24

cc: J. L. Caldwell, NRC Region III Administrator
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Table of Contents

Safety Conscious Work Environment

I. Purpose

In parallel with the Integrated Restart Test Plan (ITRP) process, Davis-Besse continued its review of the Safety Conscious Work Environment (SCWE) survey conducted at Davis-Besse in early November 2003. As part of this process, additional actions were taken by Davis-Besse and were followed by a special SCWE survey follow-up NRC inspection. This document demonstrates that the Davis-Besse SCWE continues to support restart and that FirstEnergy Nuclear Operating Company (FENOC) is taking appropriate actions, including those to address the questions raised by the U.S. Nuclear Regulatory Commission (NRC) regarding the results of the November 2003 SCWE survey.

II. Background

Historically, SCWE had not been a problem at Davis-Besse. For example, prior to the discovery of the reactor pressure vessel head degradation in early 2002:

- Davis-Besse received only two violations (one Severity Level IV and one non-cited) of 10 CFR § 50.7 in the prior 10 years.
- Davis-Besse personnel were willing to report concerns and adverse conditions (*e.g.*, over 3,000 Condition Reports (CR) were initiated in 2001).
- Davis-Besse was the subject of very few allegations (*e.g.*, a total of five allegations were submitted to the NRC from 1999-2001; only one other site in the nation had fewer allegations during that period).

Moreover, SCWE was not one of the root causes identified in the numerous analyses of the RPV head degradation event.[1]

In August 2002, on its own initiative, Davis-Besse conducted a SCWE survey. As a result, Davis-Besse identified several areas for improvement and took a number of actions to achieve improvement related to SCWE, as summarized in the "Integrated Report to Support Restart of the Davis-Besse Nuclear Power Station" (IRR), pp. 80-81. These actions included:

- Establishing a policy statement on SCWE, which emphasizes the importance of raising safety concerns and states that retaliation against individuals who raise safety concerns will not be tolerated.

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1 SCWE was identified as a contributing cause in "Root Cause Analysis Report: Lack of Operations Centrality in Maintaining, Assuring, and Communicating the Operational Safety Focus of Davis-Besse and Lack of Accountability of Other Groups to Operations in Fulfilling that Role," dated November 22, 2002.

- Providing training on SCWE to managers and supervisors.

- Establishing an Employee Concerns Program (ECP) reporting to the Vice President – Oversight, with independent investigators, provisions for submitting anonymous concerns, and protection of confidentiality for employees who submit concerns.

- Establishing a SCWE Review Team to evaluate proposed significant adverse actions against employees before the actions are taken to help detect and prevent the potential for, or perception of, retaliation for raising safety concerns.

In addition, Davis-Besse created a model for a SCWE, consisting of four pillars: (1) willingness to raise concerns; (2) normal problem resolution process (*e.g.*, Corrective Action Program); (3) Employee Concerns Program; and (4) preventing and detecting retaliation.

Davis-Besse conducted another SCWE survey in March 2003. Those results showed a substantial improvement in SCWE and overall positive results for each of the four pillars of SCWE. The results of the March 2003 SCWE survey were analyzed and corrective actions developed to address weaknesses identified by the survey. In particular, meetings were held with personnel in Radiation Protection, Maintenance, and Plant Engineering sections (which had relatively low positive responses in the March 2003 SCWE Survey) to emphasize the importance of SCWE, including the willingness to listen and respond to worker concerns and criticisms.

In November 2003, Davis-Besse conducted a follow-up survey of its SCWE. This survey included substantially the same questions as the March 2003 survey with some clarifications of specific questions from the March survey. Analyses of the November 2003 survey results showed that the overall SCWE at Davis-Besse had improved since the March 2003 survey. A question-by-question comparison for each Davis-Besse organization, however, identified questions in which the percentage of favorable responses decreased in some sections, thereby warranting further review by Davis-Besse. Additionally, at a public meeting between Davis-Besse and the NRC held on December 19, 2003, the NRC also noted the decline in favorable responses on the November 2003 survey. The NRC requested Davis-Besse to assess the results, determine the reasons for the decline, and identify corrective actions to address the identified issues, including plans to verify the effectiveness of the corrective actions.

III. SCWE Survey Review Team Assessment

In response to the NRC's request, Davis-Besse chartered a SCWE Survey Review Team ("Team"), using five independent and external SCWE or organizational development experts. The FENOC Vice President – Oversight, sponsored the Team, whose objective was to independently and comprehensively evaluate the reasons for the apparent decrease in the favorable responses to certain questions on the November 2003 SCWE survey by certain sections of the organization.

A. Methodology

The Team employed four major process steps in its review: data collection; data evaluation; conclusions; and recommended corrective actions.

The Team evaluated the March 2003 and November 2003 survey data to identify, on a section-by-section basis, those survey questions for which the results were less favorable in the November survey than the March survey. These sections were Operations, Plant Engineering, Nuclear Quality Assessment (NQA), and Chemistry. This comparative analysis formed the basis for focused interviews with employees from the affected sections or work groups. Additionally, although the Team determined that Maintenance responses had generally improved since the March survey, the Team included Maintenance in the analysis because several of the survey results for the Maintenance organization were lower than for some other sections. The Team conducted small focus group interviews between December 22 and 29, 2003. More than half of the individuals within each section of interest (except Maintenance) were interviewed. The purpose of the interviews was to determine the reason for the declines in the favorable responses.

The Team reviewed data generated from previous interviews and surveys for purposes of reaching conclusions through a process of convergent validity. The Team reviewed comments that had been provided anonymously during the March 2003 and November 2003 surveys, along with the results of interviews conducted by Nuclear Quality Assessment in November 2003; the results of a survey following the Edventures Root Learning Alignment Sessions in November 2003; and the results of interviews in December 2003 conducted by the ECP. Organizational and personnel changes, compensation and work hour changes, and other external influences were also reviewed for possible impact on the survey results.

B. Cross-Cutting Themes

Following the completion of focused interviews and evaluation of individual section responses, the Team determined that the following Themes[2] were seen in more than one section and should be addressed on a site-wide basis:

- Communications – Many of the issues and events discussed during the focused interviews appear to be the result of less than fully effective and complete communications.
- Work Hours – Comments were received in almost all focused interviews that the extended work hours required to support the restart of Davis-Besse had a negative impact on survey responses.
- Schedule Credibility – Lack of schedule credibility was a common theme between sections.

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2 For purposes of this attachment, a "Theme" is defined as a negative issue that arose in multiple interviews or section responses.

- Management Comments – A number of individuals mentioned that senior management made comments that were not consistent with SCWE expectations.

- Low Condition Report Reporting Threshold – There is a perception that the threshold for writing CRs is too low, resulting in the issuance of too many CRs, burdening the review process, and creating the possibility of important issues being overlooked.

In addition to these cross-cutting Themes, the interviewees made several positive Observations,[3] such as:

- Confidence in Shift Management – The interviews indicated a high level of trust and confidence within the Operations section. Those interviewed believed that within Operations, supervisors and managers listened to their concerns and took actions to address them.

- Corrective Action Program (CAP) – The Maintenance and NQA personnel interviewed believe that the CAP is effective for identifying and addressing higher significance issues in a timely manner. Additionally, employees in Chemistry and NQA stated that the CAP has improved.

- Employee Concerns Program – The Maintenance personnel interviewed indicated that they had heard no negative reports regarding the ECP around the site. Similarly, personnel in Chemistry and NQA generally viewed the ECP program as positive. Most interviewees in NQA stated that they would use the ECP if necessary. Additionally, personnel in Plant Engineering commented favorably on the confidentiality and effectiveness of the ECP.

- Cost and Schedule – Maintenance contractor personnel were adamant that working toward a schedule has not had a negative impact on the safety or quality of their work. NQA personnel also stated that the schedule did not affect safety issues. The interviewees in Plant Engineering unanimously agreed that Engineering management, up through the Director, did not place cost and/or schedule above resolving safety and quality issues.

IV. Corrective Actions

Davis-Besse implemented a number of corrective actions to address issues identified in the November 2003 SCWE survey, including:

- Sharing the results of the SCWE survey with managers, and in turn, their staff;

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[3] For purposes of this attachment, an "Observation" is defined as a positive issue that arose in one interview or section response.

- Conducting all-hands meetings to discuss the results and reinforce management's commitment to SCWE;

- Improving schedule credibility and work hours, through means such as implementing normal online scheduling, adding Operations work activities to the daily schedule, and leveling the Operations section work activities;

- Providing Davis-Besse employees with time off during the holiday period in December 2003 and reducing the standard work load for most employees to 40 – 50 hours per week beginning in late January 2004;

- Facilitating communications within Operations through methods such as improved night orders; and

- Providing managers with refresher SCWE training.

In addition, based upon the recommendations of the Survey Review Team, Davis-Besse will take the following additional corrective actions:

- Provide refresher training on SCWE to supervisors in the first half of 2004;

- Hold management accountable for Leadership in Action Behaviors;

- Reinforce with site personnel the benefits of a high volume/low threshold CR system;

- Develop a plan in the first quarter of 2004 for increasing the visibility of the ECP and Safety Conscious Work Environment Review Team (SCWERT); and

- Develop section-specific corrective action plans to address the declining responses for some SCWE survey questions.

V. SCWE Monitoring

Davis-Besse is taking and will take a number of actions to monitor SCWE. For example, to ensure that employees have the opportunity to provide real-time feedback of emerging issues, workers are provided the opportunity to fill out a survey on a daily basis. The survey asks employees to evaluate their workday on its performance in three key areas: (1) Are we exhibiting safety first and foremost?; (2) Is the shift schedule realistic and doable?; and (3) Communication – are you getting all the information you need? Davis-Besse management assesses the results of these surveys and takes appropriate action.

Two more SCWE surveys are planned at Davis-Besse for 2004. First, a follow up evaluation with focus group interviews will be conducted in the second quarter of 2004 to verify the effectiveness of the corrective actions taken by management. Second, a comprehensive SCWE survey will be conducted in the fourth quarter of 2004.

VI. Overall Assessment of SCWE Restart Readiness

As discussed in Section II above, SCWE had not been a historical problem at Davis-Besse, and SCWE was not one of the root causes of the RPV head degradation event. As a result of its SCWE Survey in August 2002, Davis-Besse identified areas for improvement in SCWE, and has taken many actions since 2002 to improve SCWE.

There are numerous indications that the actions Davis-Besse has taken since 2002 have been effective in achieving improvement in SCWE. These indications include:

- The results of the SCWE surveys in August 2002, March 2003, and November 2003 for the site as a whole show continuous improvement.
- The average of the favorable responses for each of the four SCWE pillars showed improvement from the August 2002 survey to the March 2003 survey, and from the March 2003 survey to the November 2003 survey.
- With one exception, the favorable responses on each common question showed improvement from the August 2002 survey to the March 2003 survey.
- The favorable responses on each common question showed improvement or constant responses (within ± 2 percent) from the March 2003 survey to the November 2003 survey.
- The number of concerns regarding Davis-Besse, submitted to both the NRC and ECP, showing improving trends. For example, there were 42 concerns submitted to the NRC in 2002, which declined to 25 submitted in 2003. The number of concerns submitted to the ECP has shown a steady decline throughout 2003 (*i.e.*, averaging more than 20 per month in the first quarter to less than 10 per month in the fourth quarter). This fact, together with the decline in concerns going to the NRC, indicates an increase in employee confidence in management and CAP to resolve concerns.

The current status of SCWE at Davis-Besse is healthy as indicated by the results of the surveys and assessments conducted in November 2003, including the SCWE survey, a survey conducted during the Edventures Root Learning Alignment Sessions, and NQA interviews. These surveys and assessments show convergent validity for the following conclusions:

- Personnel are willing to raise concerns and issues. Almost all personnel recognize that they are responsible for raising safety and quality concerns, and nearly 90 percent indicated that they feel free to raise safety or quality concerns without fear of retaliation. Additionally, personnel in fact are raising safety and quality concerns, as evidenced by the more than 11,000 CRs submitted by personnel in 2003.

- About 80 percent of employees expressed positive opinions regarding the CAP and the ECP (which corresponds to about a 10:1 ratio of positive to negative responses).

- More than 90 percent of personnel reported that they were not aware of any incidents of retaliation for raising safety concerns within the last six months.

While these responses by site personnel show that there is room for improvement in SCWE, they also show that, in general, attitudes regarding SCWE at Davis-Besse are positive and support restart.

The November 2003 SCWE Survey results indicate that certain groups (such as Operations, Plant Engineering, Chemistry, and NQA) had declines in positive responses for some survey questions. The results of the focused interviews by the Survey Review Team did not indicate any significant concern regarding SCWE. Even for the questions with the most negative responses within these groups, the positive responses outnumbered the negative responses, in some groups by a significant margin. Furthermore, the reasons for the less positive responses, in general, do not indicate a negative SCWE. For example, most of the negative responses were driven by less than fully effective communication of the reasons for changes, long work hours, concerns related to the credibility of the schedule, and the low CR reporting threshold. These reasons do not reflect adversely upon SCWE at Davis-Besse.

In general, the reasons for the less positive responses do not indicate that personnel have been discouraged from raising safety or quality concerns, that personnel have been retaliated against for raising concerns, or that employee concerns are not being addressed.

The SCWE at Davis-Besse supports restart. Davis-Besse, however, continues to take action to achieve further improvement in SCWE and to address the results and recommendations of the SCWE Survey Review Team. Additionally, Davis-Besse will continue in 2004 to monitor SCWE to ensure that its additional improvements are effective.

VII. Conclusion

Various assessments, surveys, and indicators show that Davis-Besse has been effective in improving SCWE at Davis-Besse since 2002. The results of various assessments and surveys in November 2003 show overall positive results on SCWE, and continues to show that the SCWE supports restart. Although several sections experienced small declines in positive response on some SCWE questions, the bases for the declines in general do not pertain to SCWE but to other factors, such as communications, work hours, and schedule credibility. Davis-Besse has taken and is taking corrective actions to address these areas. For these reasons, Davis-Besse concludes that the SCWE is acceptable for restart and to support safe operation of the plant.

Operations

I. Purpose

This document summarizes the actions that Davis-Besse has taken to address the operational issues identified during the December approach to normal operating pressure (NOP). This document also demonstrates that management actions have been effective to support reliable conduct of Operations and restart of Davis-Besse.

II. Summary of Operational Issues

In September 2003, and as part of Davis-Besse's preparation for return to service, the plant was heated up to normal operating pressure (NOP) and near normal operating temperature. During this evolution Davis-Besse performed a number of activities, including validating the readiness of plant systems, programs, and processes, and performing post-maintenance testing. Activities were performed in a manner that demonstrates safe operations, but that did not support industry standards for conduct of operational activities.

Davis-Besse experienced several operational issues during the NOP test, including: an inadvertent opening of a core flood tank outlet valve; unusual noise in a steam line; failure to follow procedure during auxiliary feedwater (AFW) pump minimum flow check valve surveillance; a turbine plant cooling water spill from the generator hydrogen cooler; and a reactor trip on shutdown bypass high pressure.

Davis-Besse management requested that a team of experienced Davis-Besse, FENOC, and industry personnel perform a Collective Significance Review of these events. The collective significance review identified 10 major areas for improvement and several areas of lesser significance for improvement. In response to the issues related to Operations, Davis-Besse developed an "Operations Improvement Implementation Action Plan" (originally called the Operations Improvement Action Plan) to implement corrective actions developed to address the operational issues. The Operations Improvement Implementation Action Plan is a "check and adjust" plan being used throughout the restart process.

On December 8, 2003, the RRATI began a two-week inspection at Davis-Besse. The RRATI identified a number of issues during its daily debriefs and inspection exit meeting. These issues included concerns related to pre-job briefs, awareness of plant conditions and configuration, adherence to standards and expectations, work control, qualifications of system engineers, traceability of measurement and test equipment (M&TE), and procedure quality and adherence.

Based upon these issues, the RRATI concluded that the corrective actions taken to address the operational problems that arose during the September 2003 NOP test (*i.e.*, actions based upon the Collective Significance Review and actions identified in the Operations Improvement Implementation Action Plan) were not tracked or were ineffective. Although the RRATI concluded that the individual issues were not safety-significant, it also identified a common theme involving the failure to consistently implement established management standards and

expectations. This conclusion was consistent with the results of the observations of management at Davis-Besse.

Subsequently, two operational issues arose during the December 2003/January 2004 plant heatup evolution — Operations personnel did not log that the plant had entered into a Technical Specification (TS) limiting condition for operation (LCO) action statement, and while in Mode 3 plant personnel did not complete the restoration of TS equipment to an operable status within the time allotted in the LCO action statement. Neither of these issues was safety-significant.

III. Assessment of Issues

Davis-Besse established a team ("Assessment Team") to assess the issues identified by the RRATI and determine their causes. Additionally, in response to the issues identified during the heatup evolution in late December 2003 and early January 2004, Davis-Besse chartered a second team ("Root Cause Team") to assess the issues, determine the causes, and recommend corrective actions. The 18-member Root Cause Team consisted of Davis-Besse personnel from Operations, Maintenance, Outage Management and Work Control, Regulatory Affairs, Training, and Performance Improvement, together with FENOC Operations Management individuals from corporate, Beaver Valley and Perry.

A. Assessment Approach

The Assessment Team and the Root Cause Team employed several different methods in their analyses, including Barrier Analysis, TapRoot, Management Oversight and Risk Tree, and the Human Performance Evaluation System. The teams reviewed numerous documents, including various Condition Reports (CR) and corrective actions resulting from the Collective Significance Review and others identified in the Operations Improvement Implementation Action Plan. Lastly, the Root Cause Team conducted a worker practice comparison to identify gaps between the three FENOC nuclear plants. This analysis focussed on differences in worker practices, roles and responsibilities, and work processes among the FENOC plants.

B. Findings

The Assessment Team determined that management's standards and requirements met industry standards. The Assessment Team also determined, however, that those standards were not consistently implemented by Operations. For example, while there were many good examples of pre-job briefs and turnovers, there were also instances in which such activities did not meet management standards and requirements. Additionally, Davis-Besse has determined that its implementation of the Conduct of Operations, in some instances, varied from the practices at FENOC's other nuclear plants. The perception of some Operators was that management expectations for the Conduct of Operations were guidelines rather than administrative requirements for implementing licensed activities.

Additionally, the Root Cause Team determined that the root causes of the operational events pertained to implementation of work control and operational activities, management reinforcement of operating staff roles and responsibilities, and correction of some performance deficiencies.

As discussed above, corrective actions had been developed and implemented in response to issues identified during the NOP in September 2003 (as part of the Operations Improvement Implementation Action Plan). The Root Cause Team reviewed the adequacy of these corrective actions and found that, except for a few corrective actions, they were effective in achieving improved performance in several areas, such as the content and implementation of technical procedures.

IV. Corrective Actions

Davis-Besse has taken significant actions to correct the Operations issues identified by the RRATI and two Davis-Besse teams, and to achieve sustained improved performance. First and foremost, in early January 2004, Davis-Besse implemented several changes to improve management of operational activities. These changes include the following:

- Appointment of a new Manager of Operations – The new Manager of Operations has held a senior reactor operator (SRO) license and is the former Manager of Operations and Plant Manager at Beaver Valley.

- Appointment of a new Superintendent of Plant Operations – The new Superintendent of Operations is an SRO at Davis-Besse and has more than 15 years of experience at Davis-Besse, including management positions in Operations, Training, and Maintenance.

- Appointment of a new Manager of Work Management – The new Manager of Work Management also held a SRO license at Davis-Besse and has more than 17 years of experience at Davis-Besse, including various management positions in Operations and Maintenance. He has also served as an evaluator for the Institute of Nuclear Power Operations.

The Manager of Operations has been chartered by senior management at Davis-Besse to ensure safety-focussed operation through consistent implementation of a rigorous Conduct of Operations.

Davis-Besse has also replaced the Operations Oversight Manager (OOM) program with a Shift Manager Peer Verifier (SMPV) program. The purpose of the SMPVs is to ensure that the requirements of the Operations Improvement Implementation Action Plan are effectively implemented to address issues identified during the plant heatup that began in December 2003. Unlike the OOMs, the SMPVs will perform a peer verification for Shift Managers and Unit Supervisors (while ensuring that the Shift Managers and licensed operators maintain responsibility for safe operations) as described in the SMPV charter. It should be noted that SMPVs do not perform any licensed function in this role. SMPVs report to the Director – Plant Operations.

Davis-Besse has taken and will be taking a number of corrective and preventive actions to address the issues identified by the RRATI and the Root Cause Analysis. These actions include the following:

Actions to Improve Consistency in Conduct of Operations

- Davis-Besse has developed and issued required reading for the Operations section to enforce current standards and requirements, and personnel have completed this reading.

- Refresher training has been provided to Operations personnel on actions in the Davis-Besse business practices, focusing on the areas that needed improvement such as pre-job briefs, shift turnovers, adherence to standards and expectations, and consistent communications.

- Davis-Besse has reinforced management expectations for preparation of job activities, including identification of individuals who have ownership for specific Operations activities.

- Davis-Besse developed written review criteria for preparing for operational evolutions. These criteria are similar to a maintenance walkdown sheet.

- Operations has disseminated the Root Cause Team findings and corrective actions to the shift crews, and Operations management has ensured that the failures that occurred are understood, along with the adverse consequences that accompanied these failures.

- The Management Observation Program is focusing on the specific areas needing improvement.

- Actions are in place to ensure individuals who were responsible for the Operations issues were held individually accountable in accordance with FENOC policies for disciplinary actions, and these actions were reviewed by SCWERT.

- As a post-restart action, Davis-Besse will revise DB-OP-00000, "Conduct of Operations," to align it with FENOC-wide Operations.

- The operating crews (licensed Operators) will shadow their counterparts at Perry or Beaver Valley to provide the Operators with first-hand experience on methods for achieving consistent implementation of the Conduct of Operations.

Actions to Improve Management Reinforcement of Roles and Responsibilities

- The role and responsibility of the Shift Manager for oversight of crew activities has been re-affirmed.

- The Shift Managers have been directed to spend, on a typical day, a majority of their time in an oversight role in the Control Room or in the field with Operators. Similarly, the Manager of Operations and Operations Superintendent have been directed to spend, on a typical day, a portion of their day monitoring and mentoring shift personnel.

Actions to Improve Implementation of Corrective Actions for Performance Deficiencies

- Issues related to Operations identified since the west pit flooding event on May 16, 2003 will be reviewed to determine the effectiveness of actions taken. A new CR will be initiated for those actions that have been determined to be ineffective.

- Davis-Besse assigned managers to monitor specific Operations section observation items during the plant heatup prior to the NRC RRATI assessment in January 2004.

Actions to Improve Compliance with Technical Specifications Action Statements

- Operations Standing Orders have been issued, which require the following: formal peer checks of TS entries by a second licensed individual; the Reactor Operator to track short duration TS actions via an electronic timer; the use of an upgraded TS template as a tool for consistently logging TS entries; Operators to refer to the TS book when entering action statements.

- An Operations Standing Order has been issued to require the Reactor Operator to co-authorize the start of maintenance instructions that affect TS equipment.

- The Licensed Operator Turnover Sheets have been modified to upgrade the shift turnover format to improve consistency of tracking TS items.

- The TS template was upgraded to require improved logging of the details of the action statements, including time due and task owner.

Actions to Improve Pre-Job Briefs

- The pre-job briefs for heatup activities were validated prior to heat-up to Mode 3 in December 2003.

- Post-restart, Davis-Besse will benchmark and enhance its procedure for pre-job briefs.

- Davis-Besse will be enhancing its pre-job checklist to focus more closely on limits, precautions, and interlocks.

Actions to Improve Awareness of Plant Conditions and Configurations

- As a post-restart action, the "crew update" concept will be added to the Conduct of Operations as a means to keep the crew informed of significant changes in plant status. Additionally, a computerized Inoperable Equipment Tracking Log will be established.

Actions to Improve Work Control and Schedule

- Beginning the last week of January 2004, the workweek was returned to a more normal 40 – 50 hours per week for most employees.
- Operations resources have been levelized and loaded into the schedule.
- Davis-Besse has added detailed Operations activities into the schedule, including pre-job briefs for significant operational activities.
- Davis-Besse management reaffirmed and clarified the roles of the Operations Support Center, to ensure that they understand their ownership of the schedule, and understand that schedules have to be correct.

Actions to Improve Qualification of System Engineers

- Davis-Besse has ensured that each system has at least one qualified engineer (either as the primary system engineer, backup engineer, or designated mentor).
- Additional system engineers are being qualified in 2004.

Actions to Improve Traceability of Measurement and Test Equipment (M&TE)

- Davis-Besse no longer checks out M&TE to organizations, but only to individuals to ensure individual accountability.
- Individuals who check out M&TE receive a traveler, which requires documentation of the use of the equipment.

Revision 4 to the Operations Improvement Implementation Action Plan has been issued to incorporate the appropriate and applicable corrective actions.

In sum, Davis-Besse has taken and will take numerous actions to address the operational issues, including the root causes identified by the Root Cause Team. These actions focus on new Operations management, improved oversight, increased accountability, improvements in administrative controls, and consistency in implementation of management standards and expectations.

V. Assessment of Corrective Actions' Effectiveness

With the exception of the TS issues, the heatup evolution for the second Mode 3 in late December 2003 and early January 2004 was event free. As documented in the Davis-Besse Operations Improvement Implementation Action Plan Effectiveness Review for this heatup evolution:

- Successful completion of annual requalification of onshift licensed and nonlicensed Operators, observations of Operator performance, and the lack of significant human or process errors indicates that implementation of the Operations Improvement Implementation Action Plan was generally effective in achieving improved Operator performance. In particular, improved performance was noted in the following areas:
  - Operations leadership by Shift Managers
  - Implementation of standards and expectations
  - Procedure adherence
  - Effective communication (although a need for additional improvement was noted in the area of consistent use of units when providing plant parameter information)
  - Questioning attitude
  - Self and peer checking
  - Pre- and post-job briefs (although a need for improvement was noted on the use of industry operating experience)
  - Shift turnover
  - Conservative decision-making
  - Alarm response
  - Management observations
  - Problem solving and decision-making
  - Operator knowledge of plant design, status, and configuration
- The plant heatup evolution was performed in a safe controlled manner with the operating crews maintaining control of plant parameters, complying with plant operating procedures, and adhering to standards and requirements.

- The incidents involving the TS indicated a need for additional improvement in operational performance, in regard to rigor in dealing with safety-related components and the applicable TS.

Based upon these findings from the second Mode 3 evolution, Davis-Besse took additional corrective actions as discussed in the previous section, and those actions have been effective in achieving improved performance in the month of January 2004. For example, the plant heatup from Mode 3 conducted January 26 - 28, 2004 and subsequent hold period, was performed in a safe controlled manner with the operating crews maintaining control of plant parameters, complying with plant operating procedures, and adhering to standards and expectations. Davis-Besse management noted continued improvement in Operator performance since the previous plant heatup evolution. In particular, the management observations showed a consistent improvement of the Operations staff in the conduct of pre-job briefs, conservative approach to operations, procedures use and adherence, annunciator response, and administration of Technical Specifications.

Specifically, station management determined that the Operators satisfied the following effectiveness criteria:

- No inadvertent safety system actuations caused by human errors or process weaknesses.
- No significant events in the Operations section caused by human errors or process weaknesses.
- No integrated plant operating procedure content errors that would have resulted in a plant transient or event.
- No unplanned entry into TS as a result of Operator errors.
- Consistent implementation of the Conduct of Operations standards and expectations is evident.
- Actions taken by management showed an improving trend on the three questions related to safety, schedule, and communication from the daily employee survey.
- The work implementation schedule contained the requisite Operations activities, proper risk perspective and maintained an average weekly adherence rate of 90 percent or above.
- The risk profile matched the plant schedule and activities and emergent activities are properly evaluated and the risk profile is correct. From a risk standpoint, complex evolutions are identified and properly implemented.

Station management and the Operations improvement team concluded that the Operations Improvement Implementation Action Plan has prepared Operations personnel to safely continue restart activities upon NRC approval.

VI. Readiness of Operations for Restart

Plant heatup and cooldowns are complex operational activities. Since September 2003, Operations has heated up the plant to normal operating pressure on three separate occasions, without any safety significant errors or events. Davis-Besse has identified the causes of its inconsistent performance in the Conduct of Operations, and has taken strong corrective actions, including installing new leadership in Operations, enhancing its oversight through establishment of peer evaluators, and holding individuals accountable for adhering to management standards and requirements. Recent assessment of Operations performance has shown that performance is good, and that performance satisfies Davis-Besse criteria. As a result, Davis-Besse concludes that it is ready for restart.

Remaining Major Actions for Restart
(Appendix C Update)

As of January 30, 2004, the following are the principal actions that remain to be completed prior to restart.

No.	Action	Complete?
1.	Install and test the HPI pumps.	Yes
2.	Clean, readjust packing, or evaluate leakage as needed to correct conditions identified during the NOP test.	No
3.	Complete implementation of the electrical breaker coordination modifications.	Yes
4.	Perform operability evaluation of CAC pressure transient issues to support restart.	Yes
5.	Complete implementation of the restart-required actions in the Operations Improvement Implementation Action Plan and related improvements, as summarized in Section V.C. Remaining actions include:	
	• Complete evaluation and remedial actions for Operator understanding of standards and expectations.	Yes
	• Complete assessment and validation of key administrative procedures.	Yes
	• Complete training of Operators and certify Operators are ready to return to Operations.	No
	• Place Operations Oversight Managers on shift.	Yes
	• Enhance NQA with non-Davis-Besse personnel, and perform NQA monitoring of simulator training effectiveness.	Yes
	• Provide oversight monitoring and coaching.	Yes
	• Perform an assessment of Operator performance by the Operations Oversight Managers.	Yes
	• Training will be provided to site managers on performing management observations of Operations.	Yes

No.	Action	Complete?
6.	Complete restart actions to improve apparent cause evaluations, as summarized in Section V.A.5 of Integrated Restart Report. Remaining actions include: • Condition Report Analysts within each section will receive strengthened roles and responsibilities with respect to apparent cause analyses. They will receive the same training as Apparent Cause evaluators, and will attend CARB meetings to enhance their standards for review and acceptance of apparent cause analysis.	No
7.	A process owner/facilitator will be identified to improve the consistency of problem solving and decision-making.	Yes
8.	Restart Oversight Panel (ROP), Company Nuclear Review Board (CNRB), and NQA will make conclusions regarding the readiness of Davis-Besse to restart. ROP and CNRB have made their restart recommendations; NQA will make its restart recommendation at Mode 2.	No
9.	Complete the Restart Readiness Reviews for the second Mode 4 and Mode 2. (Mode 4 reviews are complete.)	No
10.	Adjust the RCS Integrated Leakage Program to account for the results of the NOP test.	No
11.	Complete evaluation of service water flow balancing issue and identify and schedule corrective actions.	No
12.	Complete modification for Class 1E motor current overloads.	No
13.	Complete Electrical Transient Analysis Program calculations and tap setting.	Yes
14.	Train site personnel on proper procedure compliance prior to restart.	Yes
15.	Perform control rod drop surveillances when the plant returns to Mode 3.	No
16.	The Technical Specification template will be upgraded prior to restart to require improved logging of the details of the action statements, including time due and task owner.	Yes

Commitments for Cycle 14
(Appendix A Update)

The following list identifies those post-restart actions committed to by the Davis-Besse Nuclear Power Station in this document. These commitments pertain to Cycle 14 (including the 14th refueling outage). Any other actions discussed in the submittal represent intended or planned actions by Davis-Besse. They are described only as information and are not regulatory commitments. Please notify the Manager - Regulatory Affairs (419-321-8450) at Davis-Besse of any questions regarding this document or associated regulatory commitments.

No.	Commitment	IRR Section	IRR Supp. Section	Due Date
1.	On a long-term basis, follow-up assessments of programs will be performed using the Focused Self-Assessment program with criteria similar to those used in the Phase 2 restart program reviews.	IV.D.3		Periodic
2.	Davis-Besse will submit a license amendment request for revisions to the SFAS Technical Specification values.	IV.D.3		Within 60 days after restart
3.	Davis-Besse will submit a license amendment request to change the USAR's description of emergency diesel generators' frequency and voltage transient values during the automatic loading sequence.	IV.D.3		Within 60 days after restart
4.	Davis-Besse will submit an exemption request for a fire area found to be lacking full fire suppression capability. (Until the NRC approves this request, compensatory measures are being maintained.)	IV.D.3		Pending NRC approval (Serial 3003, dated January 20, 2004)
5.	Davis-Besse will submit an exemption request to credit the new Boron Precipitation Control method.	IV.D.3		Within 30 days after restart
6.	Maintenance activities have been scheduled for the next refueling outage to replace the reactor coolant pump 2-1 and 2-2 case-to-cover gaskets.	IV.J.1		Next refueling outage: 14 RFO

No.	Commitment	IRR Section	IRR Supp. Section	Due Date
7.	Davis-Besse will perform a Completeness and Accuracy review and an expanded sample of regulatory submittals dated between January 1996 and March 2002.	IV.I		March 31, 2004
8.	The Corrective Action Review Board (CARB) will review all Apparent Cause Evaluations to assess the adequacy of the analyses. After adequacy has been established (as determined by the CARB Chairman), the CARB will review selected Apparent Cause evaluations (at the discretion of the CARB Chairman) to provide additional assurance of their continued acceptability. Note: Review will continue until the adequacy is met as determined by the CARB Chairman; thereafter select at the discretion of the CARB Chairman.	V.A.5		See Note
9.	The number of Apparent Cause Evaluators will be reduced and those personnel will receive specific training that was developed for Apparent Cause Evaluators.	V.A.5		February 28, 2004
10.	Requalification or refresher training will be conducted for site personnel who perform management observations.	V.A.2		Periodic
11.	Davis-Besse will implement the FirstEnergy process for recruiting talent, identifying talent, and identifying needs and planning to fill vacancies as they become open, developing a rotation strategy for personnel, and providing feedback to Davis-Besse personnel.	VI.A.2		June 30, 2004
12.	Davis-Besse will implement the FENOC leadership development curriculum for the training of managers at Davis-Besse.	V.A.2		June 30, 2004
13.	A program will be provided to provide SCWE training to new employees and contractors.	VI.A.3		December 31, 2004

No.	Commitment	IRR Section	IRR Supp. Section	Due Date
14.	The results of ECP feedback to employees who raise concerns and the results of SCWE collective significance reviews will be publicized in order to increase confidence in the effectiveness of the ECP. This publicity will be structured to avoid compromising the confidentiality of those employees.	VI.A.3		Periodic
15.	Davis-Besse will establish focus groups of employees to obtain additional SCWE feedback. The focus groups will consist of randomly selected employees, who will meet with an independent consultant to provide any issues or concerns for action by management.	VI.A.3		Periodic
16.	NQA will perform assessments of safety culture at Davis-Besse.	VI.A.4		Annually
17.	The ECP group will conduct surveys of station personnel to determine their views related to the condition of SCWE at Davis-Besse.	VI.A.4		Annually
18.	Davis-Besse will arrange for an independent contractor to perform an assessment of safety culture at Davis-Besse using a methodology similar to that previously employed by PSHA.	VI.A.4		December 31, 2004
19.	Engineering will provide engineers with examples of good calculations to use as models.	V.A.3		March 30, 2004
20.	Davis-Besse will implement the Cycle 14 Operational Improvement Plan.	IV.H.1		End of Cycle 14, except as indicated in the Plan
21.	Condition Report Analysts within each section will receive strengthened roles and responsibilities with respect to apparent cause analyses.	V.A.5		December 31, 2004
22.	A program will be implemented to provide Safety culture case study training to new employees	VI.A.3		December 31, 2004

No.	Commitment	IRR Section	IRR Supp. Section	Due Date
23.	NQA will continue to assess procedure compliance in the fourth quarter of 2003.	V.A.5		Complete
24.	Provide refresher training on SCWE to supervisors in the first half of 2004.		IV (Att. 1)	June 30, 2004
25.	Hold management accountable for Leadership in Action Behaviors.		IV (Att. 1)	N/A
26.	Reinforce with site personnel the benefits of a high volume/low threshold CR system.		IV (Att. 1)	June 30, 2004
27.	Develop a plan in the first quarter of 2004 for increasing the visibility of the ECP and Safety Conscious Work Environment Review Team.		IV (Att. 1)	March 31, 2004
28.	Develop section-specific corrective action plans to address the declining responses for some SCWE survey questions.		IV (Att. 1)	June 30, 2004
29.	A follow up evaluation with focus group interviews will be conducted in the second quarter of 2004 to verify the effectiveness of the corrective actions taken by management.		V (Att. 1)	June 30, 2004
30.	A comprehensive SCWE survey will be conducted in the fourth quarter of 2004.		V (Att. 1)	December 31, 2004
31.	Revise DB-OP-00000, "Conduct of Operations," to align it with FENOC-wide Operations.		IV (Att. 2)	April 30, 2004
32.	Enhance pre-job checklist to focus more closely on limits, precautions, and interlocks.		IV (Att. 2)	March 31, 2004
33.	The "crew update" concept will be added to the Conduct of Operations as a means to keep the crew informed of significant changes in plant status.		IV (Att. 2)	April 30, 2004
34.	A computerized Inoperable Equipment Tracking Log will be established.		IV (Att. 2)	June 30, 2004

No.	Commitment	IRR Section	IRR Supp. Section	Due Date
35.	Additional system engineers will be qualified.		IV (Att. 2)	December 31, 2004
36.	The operating crews (licensed Operators) will shadow their counterparts at Perry or Beaver Valley to provide the Operators with first-hand experience on methods for achieving consistent implementation of the Conduct of Operations.		IV (Att. 2)	June 30, 2004
37.	Benchmark and enhance Operations procedure for pre-job briefs.		IV (Att. 2)	March 31, 2004
38.	The Operations Manager will reinforce his expectation that initial investigations and personal statements are collected immediately after significant events and that preliminary causal findings and lessons learned be disseminated to the shift crews to help reduce the probability of recurrence.	IV.C		March 31, 2004